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09/785,791	02/16/2001	Michael D. Goldstein	12808.12USI1	5543

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EXAMINER
AN, SHAWN S

ART UNIT	PAPER NUMBER
2613	13

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/785,791	Applicant(s) Michael Goldstein et al.
	Examiner Shawn An	Art Unit 2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Feb 10, 2003* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-40* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. As per Applicant's instructions in Paper 12 as filed on 2/10/03, claims 1, 4, 16, 27, and 30 have been amended.

Response to Remarks

2. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 9-10, 12-15, 17-20, 23-32, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (5,522,789) in view of Suzuki (5,796,427).

Regarding claims 1, 9, and 30, Takahashi discloses a stereoscopic device and method for producing a sequence of stereoscopic images of an object, comprising:

a sensor assembly (Fig. 13(a), 31) having an optical axis for detecting a sequence of stereoscopic images of an object (Fig. 13C);

a movement value detecting means (15B) for detecting a magnitude of adjusting the zoom optical system; and

a processing unit (58) connected to the sensor assembly and to the movement value detecting means;

wherein the processing unit outputs stereoscopic images, according to a signal received from the movement value detecting means, thereby producing a visually stable sequence of display images (col. 31, lines 43-52).

Takahashi fails to disclose a movement detector for detecting the sensor assembly perpendicular to the optical axis, relative to the object, the processing unit being connected to the movement detector, and the processing unit selecting portions of the stereoscopic images according to a signal received from the movement detector.

However, Suzuki teaches a ***prior art*** comprising a movement detector (Fig. 3, 5) for detecting the sensor assembly perpendicular to the optical axis (note: a direction of movement comprises moving up, down, left, and/or right, which means the above directions are perpendicular to the original optical axis. Furthermore, the Applicants define the perpendicular to the optical axis as direction of up, down, left, and/or right as shown in Figs. 25E-25F), relative to the object (col. 5, lines 37-42), and a processing unit (Fig. 3, 6) connected to the sensor assembly (col. 1, lines 25-30) and to the movement detector, wherein the processing unit selects portions (a less amount of information than usual) of the images (Fig. 4; col. 6, lines 3-30) according to a signal received from the movement detector.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing the stereoscopic device and method for producing a sequence of stereoscopic images as taught by Takahashi to incorporate the sensor assembly, the movement detector, and the processing unit as taught by Suzuki's prior art so that the movement detector detects the sensor assembly perpendicular to the optical axis and the processing unit connects to the sensor assembly and to the movement detector, wherein the processing unit selects portions of the images according to the signal received from the movement detector. Furthermore, by combination of Takahashi's processing unit and the Suzuki processing unit, it would have been considered

obvious to produce a processing unit that connects to the sensor assembly and to the movement detector, wherein the processing unit selects portions of the stereoscopic images according to the signal received from the movement detector, in order to compensate for the shake/vibration of the sensor assembly, thereby producing a visually stable sequence of display images.

Regarding claim 3, Suzuki teaches the processing unit (6) being connected to the movement detector (5) and a memory unit (3) connected to the processing unit.

Regarding claim 10, the Examiner takes official notice that displaying partially stereoscopic images is well known in the art.

Regarding claims 12-13, the Examiner takes official notice that a conventional color sensor arrays such as RGB and CYMG sensor arrays are well known in the art for detecting different wavelengths.

Regarding claims 14 and 32, Suzuki teaches the average of the movement to be constant, such as 0 so that any other number excluding 0 should be considered fluctuating (col. 6, lines 3-33).

Regarding claims 15 and 37, Takahashi discloses at least two light valves being operative to open at a different predetermined timing, wherein the multiwavelength (RGB) light sensor array (Fig. 13(a), 31) detects images corresponding to a predetermined combination of an open state of a selected one of the light valves and a selected one of at least two alternating beams of light (col. 11, lines 39-67; col. 12, lines 1-5).

Regarding claim 17, Takahashi discloses capture means (Fig. 13(a), 60) connected to the multiwavelength (RGB) light sensor array for capturing data from the multiwavelength (RGB) light sensor array.

Regarding claim 18, Takahashi discloses an image processor (Fig. 13(c), 60), and a storage unit (Fig. 14, 65) for capturing data.

Since the above cited references disclose storage unit, movement detector, light valves, and the multiwavelength light sensor array, it would have been considered obvious to utilize a

controller being connected to the storage unit, the movement detector, the light valves, and the multiwavelength light sensor array, and timing the operation of the light valves, the multi wavelength light sensor array, and the controllable multi wavelength illumination unit for a purpose of controlling the above devices for optimal image processing.

Regarding claims 19 and 20, Takahashi discloses the CCD preferably being a high-definition device having a large imaging surface, but nevertheless, fails to disclose the CCD including two group of sensors or a plurality of sensors. However, the Examiner takes official notice that color CCD array comprising two groups of sensors or a plurality of sensors are well known in the art. Therefore, one of skill in the art would recognize that color CCD array could easily have been utilized, so that the CCD array includes at least two group of sensors for detecting light in different and/or predetermined range of wavelengths such as blue or red or green.

Regarding claim 23, The combination of Takahashi and Suzuki does not specifically disclose different ranges of wavelength associated with the sensors being selected from colors such as RGBCYMG, Infra red, Ultra violet, and/or visible light. However, the Examiner takes official notice that color CCD sensor array is well known in the art.

Therefore, it would have been obvious to select different colors as listed above, for better lighting/illumination of an object to be analyzed.

Regarding claims 24-25, the Examiner takes official notice that RGB and CYMG color sensor arrays are well known in the art.

Regarding claim 26, Suzuki discloses a plurality of sub-matrices (Fig. 4, A1), wherein each one of the sub-matrices is selected from a respective ones of the images.

Regarding claims 27 and 39, Suzuki teaches the sub-matrices being located and measured a distance equal to a respective one of the movements from an origin to a direction opposite to the respective movement relative to the origin (col. 6, lines 3-31).

Regarding claim 28, The combination of Takahashi and Suzuki does not specifically disclose selecting colors such as RGBCYMG. However, the Examiner takes official notice that color CCD sensor array is well known in the art.

Therefore, it would have been obvious to select the color of sub-matrices from colors as listed above, for better lighting/illumination of an object to be analyzed.

Regarding claim 29, Takahashi discloses a stereoscopic video generator (Fig. 13(a), 59) connected to the processor, and a stereoscopic display unit (Fig. 13(c)) connected to the video generator for producing the stable sequence of images.

Regarding claim 31, Takahashi discloses light receiving means (Fig. 13(c); col. 13, lines 19-21). Therefore, it would have been obvious to illuminate a detected area of an object for better lighting.

Regarding claim 38, the Examiner takes official notice that a light source comprising a rotating color (RGB) filter for producing at least two alternating beams of light, wherein the beams of light are characterized as being in a different range of wavelengths, is well known in the art for detecting different wavelengths for better lighting/illumination.

5. Claims 2, 4-5, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claims 1 and 30 above, respectively, and further in view of Adelson (5,076,687).

Regarding claims 2 and 33, the combination of Takahashi and Suzuki does not particularly disclose a lenticular lens array and a light sensor array.

However, Adelson teaches a conventional optical apparatus including a lenticular lens layer (Fig. 7, 32) and a light sensor array (33), wherein the lenticular lens layer is located in front of the sensor array (Fig .7).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic device/method as taught by Takahashi to incorporate the lenticular lens layer and the light sensor array as taught by Adelson as an alternative efficient way for detecting stereoscopic images.

Regarding claim 4, Suzuki discloses a plurality of sub-matrices (Fig. 4, A1), wherein each one of the sub-matrices is selected from a respective ones of the images.

Regarding claim 5, Suzuki teaches the sub-matrices being located at a distance equal to a respective one of the movements from an origin, in a direction opposite to the respective movement relative to the origin (col. 6, lines 3-31).

Regarding claim 34, Adelson teaches capturing the light from a normally illuminated scene (col. 1, lines 12-17). Further, the Examiner takes official notice that a light source comprising a rotating color (RGB) filter for sequentially illuminating the detected area with alternating beams of light are well known in the art for detecting different wavelengths.

Regarding claim 35, Suzuki teaches measuring a distance of movements from an origin to a direction opposite to the respective movement relative to the origin (col. 6, lines 3-31).

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, Suzuki, and Adelson as applied to claim 35 above, and further in view of Watanabe (5,812,187).

Regarding claim 36, Suzuki teaches sub-matrices (Fig. 4, A1).

The combination of Takahashi, Suzuki, and Adelson does not specifically disclose illuminating ranges of wavelength.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating ranges of wavelengths (7).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic method as taught by Takahashi to incorporate the Suzuki's sub-matrices and the Watanabe's's illuminating unit so as to associate each one of the sub-matrices, at the different predetermined timing, with the different range of wavelengths for a sole purpose of better illuminating the object in stereoscopic mode.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 39 above, respectively, and further in view of Watanabe (5,812,187).

Regarding claim 40, Suzuki teaches sub-matrices (Fig. 4, A1).

The combination of Takahashi and Suzuki does not specifically disclose illuminating ranges of wavelength.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating ranges of wavelengths (7).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic method as taught by Takahashi to incorporate the Suzuki's sub-matrices and the Watanabe's's illuminating unit so as to associate each one of the sub-matrices, at the different predetermined timing, with the different range of wavelengths for a sole purpose of better illuminating the object in stereoscopic mode.

8. Claims 6-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 1 above, and further in view of Watanabe (5,812,187).

Regarding claim 6, Suzuki discloses an interface (Fig. 3, 2) being connected to the sensor assembly and to the processor;

Takahashi discloses a stereoscopic video generator (Fig. 13(a), 59) connected to the processor, and a stereoscopic display unit (Fig. 13(c)) connected to the video generator for producing the stable sequence of images.

The combination of Takahashi and Suzuki does not specifically disclose a light source being connected to the interface.

However, it is well known for a light source to be utilized for illuminating an object/device, such as an endoscope for better lighting.

Furthermore, Watanabe teaches a light source (Fig. 1, 5) for illuminating an object. Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic device as taught by Takahashi to incorporate the Watanabe's's light source unit so that the light source is connected to the Suzuki's interface for a sole purpose of illuminating the object/device for better lighting.

Regarding claim 7, Watanabe teaches producing light in a predetermined range of wavelengths, such as red, green, and blue (Fig. 1, 7).

Regarding claim 8, Watanabe's teaches an endoscope (Fig. 1) including a conventional light source unit (5) producing at least two alternating beam of light (7) as being in a different range of wavelengths.

Regarding claim 11, Watanabe's discloses a wavelengths consisting of visible red, green blue colors (7). Furthermore, the Examiner takes official notice that conventional colors such as cyan, yellow, magenta, infra-red, ultra-violet, and visible light are well known in the art. Therefore, it would have been obvious to select colors from above to be used for specific application.

9. Claims 16 and 21-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Suzuki as applied to claim 15 above, and further in view of Watanabe's (5,812,187).

Regarding claims 16 and 21, The combination of Takahashi and Suzuki does not specifically disclose a controllable multi wavelength illuminating unit producing at least two alternating beam of light as being in a different range of wavelengths.

However, Watanabe's teaches an endoscope (Fig. 1) including a conventional controllable multi wavelength illuminating unit (Fig. 5) producing at least two alternating beam of light (7) as being in a different range of wavelengths.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a stereoscopic device as taught by Takahashi to incorporate the Watanabe's's controllable multi wavelength illuminating unit as a light source being connected to the processing unit to produce at least two alternating beam of light (R, G, B) having a different range of wavelengths for generating a more accurate color video signal, thus improving an image quality.

Regarding claim 22, Watanabe's discloses a wavelengths consisting of visible red, green blue colors light (7). Furthermore, the Examiner takes official notice that conventional colors such as cyan, yellow, magenta, infra-red, ultra-violet, and visible light are well known in the art. Therefore, it would have been obvious to select colors from above for better lighting/illumination of an object to be analyzed in a specific application.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday-Friday (Monday off).

SHAWN S. AN
PATENT EXAMINER

SSA

July 27, 2003